Date: Wed, 8 Sep 93 04:30:21 PDT
From: Ham-Ant Mailing List and Newsgroup <ham-ant@ucsd.edu>
Errors-To: Ham-Ant-Errors@UCSD.Edu
Reply-To: Ham-Ant@UCSD.Edu
Precedence: Bulk
Subject: Ham-Ant Digest V93 #40
To: Ham-Ant

Ham-Ant Digest   Wed, 8 Sep 93   Volume 93 : Issue   40

Today's Topics:

Send Replies or notes for publication to: <Ham-Ant@UCSD.Edu>
Send subscription requests to: <Ham-Ant-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Ham-Ant Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/ham-ant".

Date: Tue, 7 Sep 1993 18:00:23 GMT
From: sdd.hp.com!hp-cv!hp-pcd!hpspkla!dubner@network.ucsd.edu
Subject: anyone know the Daiwa CNW 518 tuner?
To: ham-ant@ucsd.edu

Clark Savage Turner WA3JPG (turner@safety.ICS.UCI.EDU) wrote:
: I have been offered one of these for $120, and wonder if anyone knows
: much about them. I understand it is very heavy duty (a plus) and has
: good metering, with an antenna switch built into it. Anyone with
: comments? I am used to using a KW Matchbox and a Dentron Super Tuner
: here (for my QRP work.......)

Clark,

I have a similar model Daiwa tuner -- I can't remember the model number
but it's an automatic model and rated at "2.5KW PEP", whatever that is
supposed to mean. It also has the cross-needle meter and built in
2-position switch. In addition, it has a built-in low/medium power
dummy load.

My only complaint is that it can't handle appreciable power in the presence of a mismatch. When it was new (about 12 years ago), I flashed over a capacitor while trying to use my 80-meter dipole on 75 meters at the 1000-watt level. The capacitor is a close-spaced variable that uses mylar sheets to increase the capacitance and working voltage. The mylar sheets were punctured and deformed, requiring excessive force to tune the capacitor. (The automatic tuning motor just stalled.) I was finally able to obtain a replacement part through the importer/distributor (MCM Electronics) but I doubt it'd be possible today.

The replacement capacitor has flashed over again at various power levels under severe mismatch situations (mostly on 75 meters) but I've reduced power quickly enough to avoid much permanent damage.

If you are running QRP (a couple hundred watts or less) then it's a fine tuner, but you shouldn't have any false expectations that it's built like your KW Matchbox.

73,
Joe, K7JD

Joe Dubner K7JD | Hewlett-Packard Company | dubner@spk.HP.COM
| PO Box 2500 M.S. 2I |
| Spokane, WA 99220-2500 | (509) 921-3514

Date: 7 Sep 1993 18:25:33 GMT
From: sdd.hp.com!usc!howland.reston.ans.net!noc.near.net!jericho.mc.com!fugu!levine@network.ucsd.edu
Subject: G5RV
To: ham-ant@ucsd.edu

< Lotsa good stuff deleted for brevity>

>The moral of the story is: Throw away your lossey coax and bring
>ladder-line directly to the balanced output of an antenna tuner.
>You will radiate a lot more power. I have been told that one "S"
>unit doesn't matter but I beleive it does going from 1 to 2 on
>weak-signal CW.
>
>ELNEC is an antenna analysis program available from Roy Lewallen,
>W7EL, P.O.Box 6658, Beaverton, OR 97007. A Smith Chart was used
>to determine the transformed impedences.

>

Thanks for the interesting analysis. The one flaw in the moral
of the story is that most people (I would think) including myself
can't easily (and properly) bring ladder line into the shack without
bending is around the metal window frame etc...

All of my tower runs come in through a 3" PVC pipe into the basement,
around dryers and hot water tanks, then up through the floor into
the shack. The coax feeder for the G5RV is the attraction for using
this type of antenna for me in the first place.

Again though, thanks to you and the other posters for some interesting
words.


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         || \\  ||  //    ||   \\  //    \\  //
         ||  \\ || //     ||    \\//      \\//
------------------------------------------------------------FTAC
Bob Levine  KD1GG 7J1AIS VK2GYN
levine@mc.com                              (508) 256-1300 x247
kd1gg@wa1phy.ma                         FAX (508) 256-3599
------------------------------------------------------------
```

Date: Tue, 7 Sep 1993 23:31:48 GMT
From: scubed!nuntius@network.ucsd.edu
Subject: G5RV
To: ham-ant@ucsd.edu

Subject: Re: G5RV
From: Bob Levine, levine@mc.com
In article <26ijmt$6eb@jericho.mc.com> Bob Levine,
levine@mc.com writes:
>
>   < Lotsa good stuff deleted for brevity>
>
>>The moral of the story is: Throw away your lossey coax
and bring
>>ladder-line directly to the balanced output of an
antenna tuner.
>>You will radiate a lot more power. (stuff omitted)

This is true and worth some hassle to obtain.

>Thanks for the interesting analysis. The one flaw in the moral
>of the story is that most people (I would think) including myself
>can't easily (and properly) bring ladder line into the shack without
>bending is around the metal window frame etc...
>
>All of my tower runs come in through a 3" PVC pipe into the basement,
>around dryers and hot water tanks, then up through the floor into
>the shack. The coax feeder for the G5RV is the attraction for using
>this type of antenna for me in the first place.

There is a straightforward way around this. Construct a short shielded balanced line for the areas where the balanced feeder must go through windows, around dryers and hot water tanks, through vents etc. This can be done by using two pieces of coax. The shields should be tied together and the inner conductors tied to the balanced line. This will introduce some mismatch as the impedence of the shielded balanced line, twice the impedence of the coax used to make it up, will probably be lower than the balanced feeder. There will also be losses in the shielded balanced line due to the high SWR, but if the lenghths used are much shorter than the coax in a G5RV, you should come out ahead.

As a general rule of thumb, if the balanced line is kept away from metal objects by a distance twice that of the spacing of the line, the effects of the surrounding material will be small. This can be accomplished in by wrapping the line with non conductive foam rubber where it comes near metal. Two inch thick foam works well for the common polyethylene 300 and 450 ohm ladder line. In general, the imbalance in the balanced feeder caused by close spacing to objects causes less problems than the high losses in the G5RV coax section.
>
>Again though, thanks to you and the other posters for some interesting
>words.

You are very welcome.

James R. Duffey KK6MC/5
S-Cubed Division of Maxwell Laboratories
2501 Yale Street SE Suite 300
Albuquerque, NM 87106
"Trouble seldom comes as a single spy, but rather in
entire battalions"-Horace Rumpole
Opinions are my own and do not reflect the position of
Maxwell Laboratories

Date: 7 Sep 1993 19:59:32 GMT
From: swrinde!gatech!howland.reston.ans.net!usc!news.bbn.com!bbn.com!
levin@network.ucsd.edu
Subject: G5RV
To: ham-ant@ucsd.edu

levine@mc.com (Bob Levine,x247) writes:
  [someone wrote:]
|>The moral of the story is: Throw away your lossey coax and bring
|>ladder-line directly to the balanced output of an antenna tuner.
|>You will radiate a lot more power. I have been told that one "S"
|>unit doesn't matter but I beleive it does going from 1 to 2 on
|>weak-signal CW.
|
|Thanks for the interesting analysis. The one flaw in the moral
|of the story is that most people (I would think) including myself
|can't easily (and properly) bring ladder line into the shack without
|bending is around the metal window frame etc...

Me too. I really would like the convenience of using coax to my
dipole, especially since I learned about how easy choke baluns were.
But on the other hand there's the advantage of low-loss ladder line...

So my thought was: build a standard dipole (I believe I can easily
string a full 80-meter half-wave, but could go longer if I don't worry
about trying to resonate on any useful frequency). Run ladder line as
far as I practically can (so it would look something like a G5RV but
there's no intention of using a specific length to act as a
transformer). Attach coax (and some sort of balun) to run into the
shack.

Now instead of a long piece of coax to the antenna (lots of loss), or
ladder line all the way to the tuner (low loss, so higher SWR doesn't
matter so much), I'd have a lot of ladder line and a lot less coax, so
I'd come out some where in between, maybe almost as good as using pure

ladder line. So what (if anything) is wrong with this picture?

     /JBL   KD1ON
=
Nets: levin@bbn.com | "How does a mouse let me move the cursor anywhere
pots: (617)873-3463 | I want?" "What are address busses?" "How do
KD1ON (@KB4N.NH.USA) | icons work?"   --Time-Life Books

Date: Tue, 7 Sep 1993 12:22:00 GMT
From: dog.ee.lbl.gov!agate!howland.reston.ans.net!usc!cs.utexas.edu!csc.ti.com!
tilde.csc.ti.com!ra.csc.ti.com!fstop.csc.ti.com!sbrown@network.ucsd.edu
Subject: J-pole polarity
To: ham-ant@ucsd.edu

In article <CCspyF.1vt@icon.rose.hp.com> greg@core.rose.hp.com (Greg Dolkas)
writes:

> My theory is that since I'm feeding the antenna with coax, the shield side of
> the coax needs to be at RF ground at the feed point in order for the shield
> not to radiate and otherwise interfere with the antenna. Well, since the
> parallel section of the antenna is balanced, RF ground is down at the short
> at the bottom of the J, and the shield is flapping all over the place, RF-wise.
>
> The way this all works (sez the theory), is that the piece of pipe below the
> short in the J acts as a counterpoise of sorts, and needs to be a certain
> length (resonance) to move the RF ground back to where the shield attaches.
> Hold the J-pole sideways (including the stuff below the J), and it looks like
> a dipole with a funny delta match stuck in the middle. It even balances on
> your finger at about the feed point.
>
> Construct the theory to fit the results, right? Works for me.
>
> Greg KD6KGW

My guess is that it would be a lot easier to keep the rf off the coax than
worry about what length of support pipe you have below the j-pole.

I have quite successfully used a sleeve balun made my stripping back the
jacket of the feed cable enough to allow me to fold the shield back over
the jacket for 1/4 wavelength. I then protected this shield from the
weather. Works fine. There are a couple of other easy-to-make baluns
that you can use. See the ARRL antenna book.

              ****
              | Steve Brown, WD5HCY | Simplicate |
              | sbrown@charon.dseg.ti.com | and add |

```
              |  wd5hcy@wd5hcy.ampr.org      | lightness. |
              |       [44.28.0.61]           |            |
              ******************************************
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Date: 7 Sep 93 14:38:31 GMT
From: ogicse!uwm.edu!cs.utexas.edu!sdd.hp.com!hpscit.sc.hp.com!
cupnews0.cup.hp.com!jholly@network.ucsd.edu
Subject: Log Periodic Formula?
To: ham-ant@ucsd.edu

Craig Anderson (craiga@Eng.Sun.COM) wrote:
: Hello,
:   Anyone happen to have the formula describing Log Periodic antennas lying
: around? I bought an antenna from a guy at a flea market who said he built
: it as a log periodic for 440MHz. He said he was a bit confused because he had
: seen several different formulas for log periodics and wasn't sure which was
: right. The antenna seems to work fine, but I would like to check his
: measurements. I can't check any closer than the measurements because I
: don't have a field strength meter or an SWR meter. But if anyone has the
: *right* formula, I would appreciate seeing it (or a pointer to it).

: Thanks very much,
: Craig N6YXK

: PS. If it helps, the antenna is made of 1/2" aluminum pipes and 3/16" aluminum
:   rods.

Have you checked out the 15th or 16th edition of the ARRL antenna book? I seem
to recall that one of those editions had a section on log periodic antennas.
Jim Hollenback, WA6SDM
jholly@cup.hp.com

Date: 7 Sep 93 14:05:47 GMT
From: ogicse!uwm.edu!spool.mu.edu!bloom-beacon.mit.edu!world!ksr!
jfw@network.ucsd.edu
To: ham-ant@ucsd.edu

References <26809f$89o@jericho.mc.com>, <2690ab$a3e@news.delphi.com>,
<26bj4h$4un@quad.wfunet.wfu.edu>0
Subject : Re: G5RV

matthews@wfu.edu (Rick Matthews) writes:
>CECILMOORE@DELPHI.COM (cecilmoo@news.delphi.com) wrote:
>: Bob, the nature of a transmission line confines the size of the field.

>: Currents flow in opposite directions in each conductor tending to
>: cancel the fields. 3' is plenty. If I were you, I would be more worried
>: about the 3-5 db loss in the RG-59 coax per 100' with an SWR=20 as you
>: will experience with a G5RV on some of the bands.
>: Anybody who wants to know what ELNEC and transmission line theory says
>: about the G5RV, send me your e-mail address.
>SWR = 20 on the coax? What band have you seen a 20:1 SWR on the coax
>side of the transformer? I know it's outrageous on the twin-lead
>side, but my ancient Swan loads it up just fine on 80, 40, 20, 15, and
>10. I would be surprised the built-in pi-network could handle a 20:1 SWR.

(I'll let someone else provide a demonstration that at some interesting
frequency, the G5RV presents 20:1 SWR to the feedline.)

It doesn't see 20:1 SWR because of loss. Take a look at the "Transmission loss
as a function of source and load VSWR" nomograph in the ARRL Handbook
transmission lines chapter. If you have 100' of RG-58 at 24MHz (chosen because
that is exactly 2dB loss, which makes using the chart easy :-), then with
20:1 SWR at the coax/twinlead junction, the transmitter end of the coax will
see about a 3.5:1 SWR, which the transmitter will probably load fine (though
if you have a built-in pi network, it might well handle 20:1 all by itself,
anyway). The total loss in the coax is 7.75dB, meaning your coax is getting
warmer than the antenna is :-). Bring the ladder line into the shack, and
if necessary get a transmatch (if the Swan really won't load the reactance
as is). (Of course, actual losses will depend on the actual length of your
coax and the actual material.)

> The antenna is new, and I haven't fully mapped the SWR, but so far it
> seems a decent compromise for someone who is trying to gradually sneak
> up on the neighbors.

People have loaded up, and even made contacts using bedsprings and lathes;
and in this case, you can probably give yourself a several dB improvement
without altering the radiating element at all by changing from coax to ladder
line.

End of Ham-Ant Digest V93 #40
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